CANADA REMEMBERS
LE CANADA SE SOUVIENT

INAC, Nunavut District
P.O. Box 100
Iqaluit, NU
X0A 0H0

tel.: (867) 975-4275
fax.: (867) 979-6445

Your file *Votre référence*

Our file *Notre référence*
(unlicenced)

January 15, 2001.

Hayward Sims
Senior Administrative Officer
Municipality of Cape Dorset
P.O. Box 30
Cape Dorset, NU X0A 0C0

September 5, 2000 Municipal Water Use Inspection - Report

Firstly, I wish to thank Dan Holmes for the much appreciated time and assistance provided during the tour of the Municipality's water use and waste disposal facilities. Attached for your records is the Municipal Water Use Inspection Report pertaining to the September 5, 2000 inspection; although the water and waste operations appear generally well managed, definite concern stems from the state of the facilities themselves. As such, the following considerations were noted, and will need to be addressed:

- **Sewage waste disposal:** At the time of the inspection, the uppermost cell of the new sewage disposal facility was filled to capacity (figure 1), and effluent was decanting downslope (figure 2). As extensive spring runoff essentially rendered the second cell useless by washing out its berms (figure 3), sewage effluent from the first cell of the new sewage disposal facility (figure 4) basically flowed unhindered through the breached lower cell (figure 5), into receiving waters (figure 6). Nevertheless, the attached analytical results relating to the discharge from the new sewage disposal facility reveal relatively acceptable concentrations of tested parameters. However, due to the excessive springtime erosion along the current sewage and solid waste disposal valley, the Municipality had to temporarily revert to the old, undersized sewage lagoon (figure 7) although it admittedly provides very minimal effluent treatment prior to discharge (figure 8).

This being said, the Inspector strongly questions the viability of the new sewage disposal facility. Indeed, the recurring nature of runoff-related damage undeniably jeopardizes the effectiveness of the facility. Accordingly, it is the Inspector's belief that resources annually directed to patch up work might be more suitably allocated to the investigation of alternate long-term locations, or perhaps even technologies, of sewage treatment facilities appropriate for the Municipality. Thus, by copy of this letter to Community Government and Transportation (GC&T), the Inspector trusts that this avenue will at least be considered.

- **Solid waste disposal:** Much of the above erosion and runoff issues equally apply to the solid waste disposal facility situated within the same drainage valley. Although the wastepile is well compacted and covered, and household combustible waste appears to be burned on a regular basis (figure 9), concerns remain over the quantity of runoff flowing through the site and its implications in regards to leachate production (figure 10). However, the attached analytical results indicate that the sampled leachate from the solid waste disposal facility was, at the time of the inspection, relatively benign. On a side note, should erosion be successfully controlled, the instalment of a perimeter fence would further contain the waste within the facility, and likely minimize complications related to wildlife attraction.

In parallel, both condition and location of the bulky metal wastes disposal site are causes for concern, although the attached analytical results are not disturbing. Indeed, an impressive volume of bulky wastes, the toe of which lies below the high tide mark, is accumulated along a section of shoreline (figures 11-12). Further, hazardous material is simply discarded at the site, since no specific form of containment is provided. Consequently, the inspector commends the Municipality for recognizing the need to cleanup the site, and for taking appropriate steps in this direction; such as contacting the EcoAction community program towards the restoration of this and other waste disposal sites within municipal boundaries, and investigating with the Canadian Coast Guards the possibility of shipping out bulky metal wastes on sealift backhauls.

- **Non-compliance of Act:** During the inspection, the importance of a Water licence was discussed, and the Inspector was under the impression that the Municipality would follow through by submitting an application to the Nunavut Water Board (NWB). However, to the Inspector's knowledge, the NWB has yet to receive such a document. Therefore, the Inspector wishes to reiterate that a Water licence is not a mere paperwork formality, but constitutes a legal requirement under both the *Northwest Territories Waters Act* and the *Nunavut Land Claims Agreement*. INAC and/or other implicated agencies can, if required, provide assistance for the completion of this process.

Please feel free to contact me at (867) 975-4298 or lavalleep@inac.gc.ca should any questions/comments arise.

Sincerely,

Philippe Lavallée
Water Resources Officer
INAC, Nunavut District

c.c. - Nunavut Water Board, Gjoa Haven
- CG&T, Iqaluit (Doug Sitland)
- Baffin Health & Social Services, Iqaluit (Bonnie Segal)
- EC Environmental Protection, Yellowknife (Anne Wilson)

Indian and Northern Affairs Canada | Affaires Indiennes et du Nord Canada

MUNICIPAL WATER USE INSPECTION FORM

Date: 2000/09/05 **Licensee Rep.** (Name/Title)**:** Dan Holmes / Director, Municipal Operations

Licensee: **Municipality of Cape Dorset** **Licence No.:** **unlicenced**

WATER SUPPLY

Source(s): Tee Lake / Dead Dog Lake **Quantity used:** not inspected

Owner:/Operator: Hamlet

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Intake Facilities: NI **Storage Structure:** A **Treatment Systems:** A **Chemical Storage:** A

Flow Meas. Device: NI **Convey. Lines:** NI **Pumping Stations:** A

Comments: Alternate water source periodically utilized due to recurring freeze-ups of the old intake line. Sections of intake line recently replaced. No concerns noted with well-kept truckfill station. Chlorination in use.

WASTE DISPOSAL

Sewage: **Sewage Treatment System** (Prim./Sec/Ter.)**:** primary; discharge overland to ocean

Natural Water Body: **Continuous Discharge** (land or water)**:**

Seasonal Discharge: x **Wetlands Treatment:** very limited **Trench:**

Solid Waste: **Owner/Operator:** Hamlet

Landfill: **Burn & Landfill:** x **Other:**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Discharge Quality: sampled **Decant Structure:** NA **Erosion:** U

Discharge Meas. Device: none **Dyke Inspection:** NA **Seepages:** A

Dams, Dykes: U **Freeboard:** NA **Spills:** none reported

Construction: NA **O&M Plan:** NA **A&R Plan:** NA

Periods of Discharge: A **Effluent Discharge Rate:** not measured

Comments: Extensive spring runoff washed out the lower cell of the new sewage disposal facility. Upper cell and old sewage lagoon utilized alternatively, until full. Sewage effluent at both facilities flowing downslope without much prior retention time. Unfenced solid waste disposal facility appears regularly burned, and is well compacted and covered. Concerns noted with the quantity of observed, and potential, runoff flowing through the site. The toe of the bulky metal wastes disposal site lies under the high tide mark. No form of containment provided for hazardous materials. Waste oil is adequately stored and disposed of at the Hamlet garage (furnace).

FUEL STORAGE

Owner/Operator:

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

Berms & Liners: **Water within Berms:** **Evidence of Leaks:**

Drainage Pipes: **Pump Station & Catchment Berm:**

Pipeline Condition: **Not Applicable:** x **Condition of Tanks:**

SURVEILLANCE NETWORK PROGRAM (SNP)

Samples Collected **Hamlet:** none

INAC: metal dump leachate, dump leachate, discharge from new sewage lagoon

Signs Posted **SNP:** not applicable **Warning:** none

Records & Reporting: not applicable

Geotechnical Inspection: none required; although may be warranted due to recurring erosion problems

Non-Compliance of Act or Licence: Community is unlicenced.

Philippe Lavallée

Inspector's Name **Inspector's Signature**

figure 1. Chute and first cell of the new sewage disposal facility; 2000/09/05.

figure 2. Path of discharge from the first cell of the new sewage disposal site; 2000/09/05.

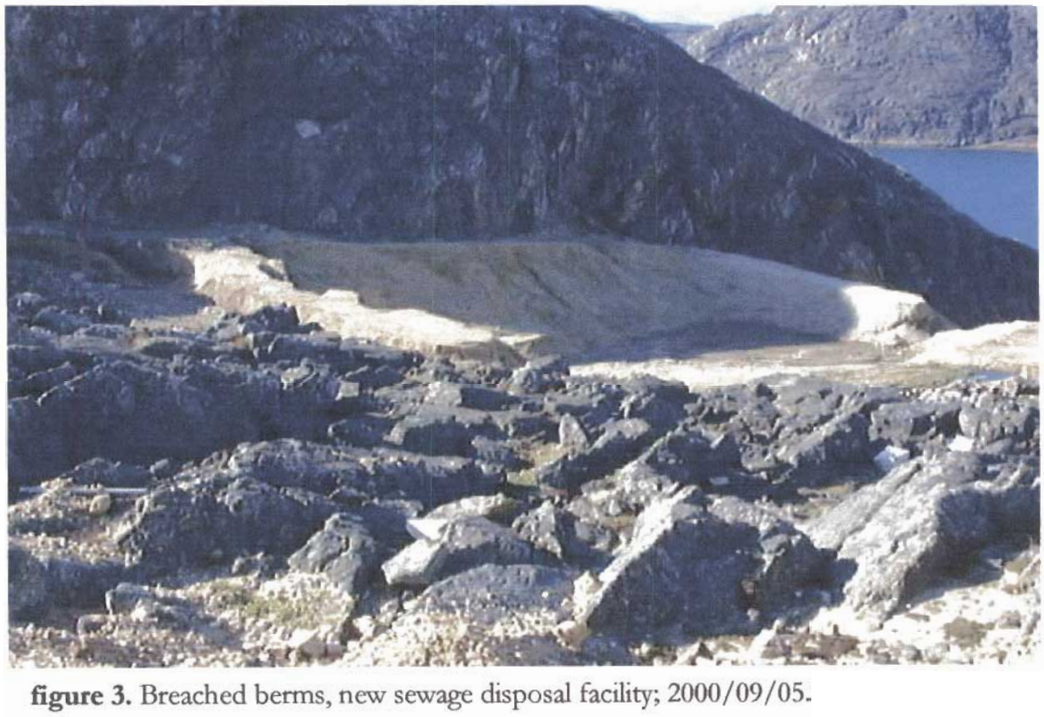

figure 3. Breached berms, new sewage disposal facility; 2000/09/05.

figure 4. Main veins of discharge from the first cell and the dump; 2000/09/05.

figure 5. Second cell of the new sewage disposal facility; 2000/09/05.

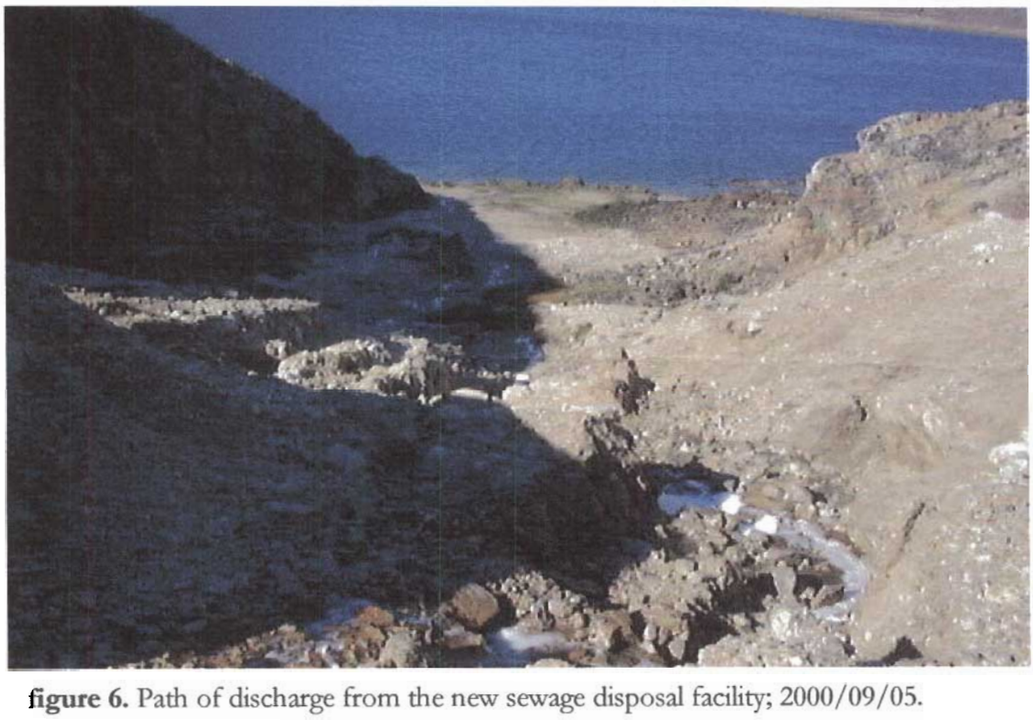

figure 6. Path of discharge from the new sewage disposal facility; 2000/09/05.

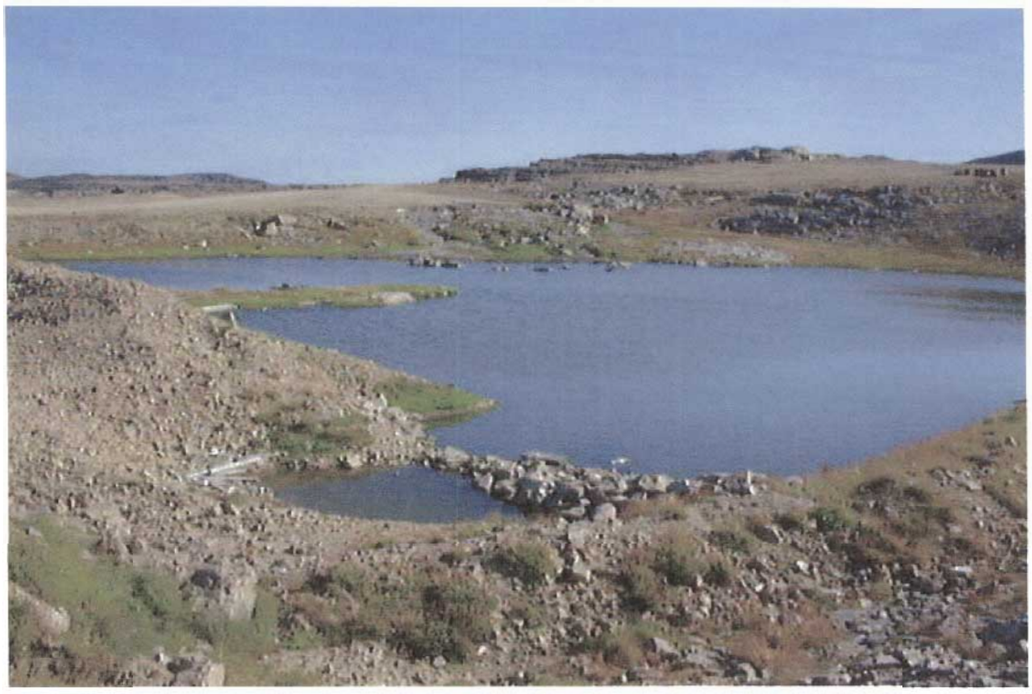

figure 7. Old sewage disposal facility; 2000/09/05.

figure 8. Path of discharge from the old sewage disposal facility; 2000/09/05.

figure 9. Solid waste disposal facility; 2000/09/05.

figure 10. Leachate from the solid waste disposal facility; 2000/09/05.

figure 11. Bulky metal wastes disposal facility; 2000/09/05.

figure 12. Bulky metal wastes disposal facility; 2000/09/05.

TAIGA ENVIRONMENTAL LABORATORY
Dept. Indian Affairs & Northern Development
4601-52 nd Ave., Box 1500
Yellowknife, NT. X1A 2R3
Tel. (867) 669-2788
Fax: (867) 669-2718

To: NUNAVUT
Operations Directorate, DIAND
BOX 100

IQALUIT X0A 0H0

Att'n: Philippe Lavallee

LAB# 201981

SAMPLE INFORMATION

Our Lab#: 201981
Your Sample ID: Lagoon
Sample Matrix: discharge

PROJECT:

Collection:
Location: Cape Dorset
Date: 9/05/00
By: Philippe Lavallee

Received Date: 9/7/00
Report Date: 11-Oct-00
Approved By: W Goode

- SAMPLE ANALYSIS REPORT -

Lab#	Test	Result	Units	Detection Limit	Analysis Date	Analytical Method
201981						
	Tot-Suspended-Solids	15	mg/L	3	9/21/2000	EC10406
	NO3-N+NO2-N	0.015	mg/L	0.008	9/29/2000	07110
	Ammonia-N	35.7	mg/L	0.005	9/13/2000	EC7557
	T-Phosphorous	2.73	mg/L	0.004	9/12/2000	EC15411
	Bio-Oxy-Demand	34	mg/L	2	9/07/2000	08208
	Faecal_Coliform	90000	CFU/dL	1	9/08/2000	036014

Field Data (00/09/05) **lagoon**
Temperature: 9.5 °C
Conductivity: 703 μS
pH: 8.0 **Time:** 11:39

NIGA ENVIRONMENTAL LABORATORY
Dept. Indian Affairs & Northern Development
4601-52 nd Ave., Box 1500
Yellowknife, NT. X1A 2R3
Tel. (867) 669-2788
Fax: (867) 669-2718

To: NUNAVUT
Operations Directorate, DIAND
BOX 100
IQALUIT X0A 0H0
Att'n: Philippe Lavallee

LAB# 201980

SAMPLE INFORMATION

Our Lab#: 201980
Your Sample ID: Dump
Sample Matrix: leachate

PROJECT:

Collection:
Location: Cape Dorset
Date: 9/05/00
By: Philippe Lavallee

Received Date: 9/7/00
Report Date: 11-Oct-00
Approved By: W Cook

- SAMPLE ANALYSIS REPORT -

Lab#	Test	Result	Units	Detection Limit	Analysis Date	Analytical Method
201980						
	Calcium	25.3	mg/L	0.05	9/09/2000	EC20003
	Magnesium	8.67	mg/L	0.01	9/09/2000	012102
	Sodium	61.3	mg/L	0.02	9/10/2000	011102
	Potassium	5.54	mg/L	0.03	9/10/2000	EC19102
	Sulphate	39	mg/L	3	9/27/2000	016306
	Tot-Suspended-Solids	21	mg/L	3	9/21/2000	EC10406
	NO3-N+NO2-N	0.716	mg/L	0.008	9/29/2000	07110
	Ammonia-N	0.185	mg/L	0.005	9/13/2000	EC7557
	T-Phosphorous	0.177	mg/L	0.004	9/12/2000	EC15411

Field Data (00/09/05) **dump**
Temperature: 6.5 °C
Conductivity: 524 μS
pH: 8.4
Time: 11:15

NIGA ENVIRONMENTAL LABORATORY
Dept. Indian Affairs & Northern Development
4601-52 nd Ave., Box 1500
Yellowknife, NT. X1A 2R3
Tel. (867) 669-2788
Fax: (867) 669-2718

To: NUNAVUT
Operations Directorate, DIAND
BOX 100

IQALUIT X0A 0H0

Att'n: Philippe Lavallee

LAB# 201979

SAMPLE INFORMATION

Our Lab#: 201979
Your Sample ID: Metal Dump
Sample Matrix: leachate

PROJECT:

Collection:
Location: Cape Dorset
Date: 9/05/00
By: Philippe Lavallee

Received Date: 9/7/00
Report Date: 29-Sep-00
Approved By: W Goodz

- SAMPLE ANALYSIS REPORT -

Lab#	Test		Result	Units	Detection Limit	Analysis Date	Analytical Method
201979							
	Tot-Suspended-Solids		10	mg/L	3	9/21/2000	EC10406
	Ammonia-N	<	0.005	mg/L	0.005	9/13/2000	EC7557
	T-Phosphorous		0.035	mg/L	0.004	9/12/2000	EC15411
	Total Arsenic(w)-GFAA	<	1	ug/L	1	9/18/2000	GFAA
	Tot-Cadmium(ICP-MS)	<	0.3	ug/L	.3	8/09/2000	ICP-MS
	Tot-Cobalt(ICP-MS)	<	1	ug/L	1	8/09/2000	ICP-MS
	Tot-Chromium(ICP-MS)		3	ug/L	3	8/09/2000	ICP-MS
	Tot-Copper(ICP/MS)		3	ug/L	2	8/09/2000	ICP-MS
	Tot-Iron(AA)		1.75	mg/L	0.03	9/12/2000	ICP-MS
	Tot-Manganese(ICP-MS)		16	ug/L	1	8/09/2000	ICP-MS
	Tot-Nickel(ICP-MS)		2	ug/L	1	8/09/2000	ICP-MS
	Tot-Lead(ICP-MS)		1	ug/L	1	8/09/2000	ICP-MS
	Tot-Zinc(ICP-MS)	<	10	ug/L	10	8/09/2000	ICP-MS
	Tot-Mercury(water)	<	0.01	ug/L	0.01	9/08/2000	080314

Field Data (00/09/05) metal dump
Temperature: 9.0 °C
Conductivity: 353 μS
pH: 9.2 Time: 10:28